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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,634	03/16/2001	Hans-Peter Burvenich	3268-0115P	5761

30596 7590 03/13/2003

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EXAMINER

MASINICK, MICHAEL D

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,634

Applicant(s)

BURVENICH ET AL.

Examiner

Michael D Masinick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Examiner has read applicants amendments and arguments and they are found to be non-persuasive.

1. In response to applicant's argument that the combination of Lee and Shaefer is not a valid combination, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

2. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

3. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

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teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one skilled in the art **at the time of invention of the current application**, when looking for a way to optimize the order of slabs would have reasonably turned to genetic algorithms. A genetic or evolutionary algorithm applies the principles of evolution found in nature to the problem of finding an optimal solution to a problem. In the immediate case, the problem is the optimum scheduling and ordering of the slabs.

Applicants assertion that this combination is invalid because the combination would not have been made on the invention date of Lee is incorrect. See MPEP 706.02(j).

Regarding applicants assertion that the phrase of Lee “a continuous caster schedule and a hot strip mill schedule are created” does not substantially equal the instant invention phrase “controlling the continuous casting plant by the computing unit includes defining an operational sequence for the entire continuous casting rolling plant” is not persuasive. The schedules of Lee, when combined, are substantially the same as a “sequence for the entire continuous casting rolling plant”. The schedules of Lee could easily be combined to make a “master schedule”.

Previous rejections stand as previously written with the exception of the amendment to claim 1, which is rejected with the same prior art previously used.

Claim Rejections - 35 USC § 112

Previous 35 USC § 112 rejections of claims 3 and 9 are removed as fixed by amendment.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.

3. Claim 6, dependant upon claim 1, is repetitive with regards to the plant vs. method of using the plant and specifically the statement "... slabs belonging to different production orders (are produced) within sequences on the continuous casting and rolling plant." While not exactly word-for-word, this statement is nonetheless repetitive and unnecessary as it is confusing to the reader.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,808,891 to Lee et al in view of U.S. Patent No. 5,222,192 to Shaefer.
6. Referring to claims 1 and 6, Lee shows a continuous casting and rolling plant, and a method of operating a continuous casting and rolling plant with a computing unit, including a plurality of slabs belonging to different production orders within sequences on the continuous

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casting and rolling plant ("Order Load", Abstract), comprising: determining the order of the slabs belonging to the production orders within the sequences with the computing unit, and controlling the continuous casting and rolling plant by the computing unit in accordance with the order determined (Col 6, lines 53-61), wherein controlling the continuous casting plant by the computing unit includes defining an operational sequence for the entire continuous casting and rolling plant (schedules as shown above).

7. Lee does not show that the order determination step is accomplished by using genetic algorithms.

8. Shaefer shows the use of Genetic Algorithms as a problem solving technique where random optimization is needed (Abstract, Patent Subject).

9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the Genetic Algorithms of Shaefer in place of the optimization technique of Lee because genetic algorithms provide "extraordinarily quick discovery of early approximate solutions" (Shaefer, Col 3, lines 43-50). This substitution is also made for all inherent traits of genetic algorithms as are shown with relation to Shaefer below.

10. Referring to claim 2, Shaefer shows wherein at least one of a selection, a recombination, or a mutation is carried out by the genetic algorithm ("mutation", Col 3, lines 27-34).

11. Examiner notes that these are all inherent functions of a Genetic Algorithm.

12. Referring to claims 3,4,7, 9, and 10, Shaefer shows wherein the order of the slabs belonging to the production orders within the sequences is determined with the computing unit by an event-oriented evaluation (Fig. 5 and Col 8, lines 62-65) according to the quality of the solutions.

13. Examiner notes that an evaluation according to quality step is inherent to the use of genetic algorithms.

14. Referring to claims 5, and 11-15, Shaefer shows where a starting solution, as a starting point, is determined by the computing unit (Col 2, lines 3-6).

15. Examiner notes that creating a random starting point is inherent to all genetic algorithms and would inherently be selected by the computing unit.

16. Referring to claim 8, Lee shows wherein the continuous casting and rolling plant is a thin-slab continuous casting and rolling plant ("Rolled to desired thickness", Col 2, lines 22-28).

17. Referring to claims 16-19, Lee shows a continuous casting and rolling plant wherein the plurality of slabs which belong to different production orders are produced within sequences on the continuous casting and rolling plant ("Order Load", Abstract), wherein the computing unit determines the order of the slabs belonging to the production orders within the sequences (Col 6, lines 53-61).

18. Lee does not show that the order determination step is accomplished by using genetic algorithms.

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19. Shaefer shows the use of Genetic Algorithms as a problem solving technique where random optimization is needed (Abstract, Patent Subject).

20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the Genetic Algorithms of Shaefer in place of the optimization technique of Lee because genetic algorithms provide “extraordinarily quick discovery of early approximate solutions” (Shaefer, Col 3, lines 43-50).

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

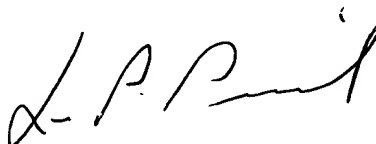
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D Masinick whose telephone number is (703) 305-7738. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (703) 308-0538. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7239 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

mdm
March 11, 2003

A handwritten signature in black ink, appearing to read 'L. Picard', is written in a cursive style.

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100